SONY

HVR-1500

Digital HD Video Tape Recorder

The HVR-1500 is an HDV source feeder/recorder positioned at the top of the Sony HDV Series. Inheriting the design concept of the market-acclaimed DSR-1500AP, the HVR-1500 offers the same convenient features that professional users demand, such as quick mechanical response, multi-format DV playback and a rich set of professional video/audio interfaces ranging from analogue to digital SDI and AES/EBU.

The HVR-1500 can also be used as a Standard Definition DVCAM recorder, in which case the same editing facilities as the DSR-1500AP are offered.

Features

Switchable Recording - HDV 1080i/ DVCAM/DV and 60i/50i

The HVR-1500 can be switched between HDV 1080i*, DVCAM and DV (SP)** recording modes, providing full flexibility to record in either standard definition or High Definition depending on your production needs. In addition, it can be switched between 60i and 50i modes, eliminating the need for two separate VTRs, one for each standard.

* In HDV mode, editing capabilities are not available

** The HVR-1500 supports DV (SP) mode only; DV (LP) mode is not available. Assemble or insert editing is not supported in DV (SP) mode.

Playback Compatibility with DV (25 Mb/ s) Family Formats

For operational versatility, the HVR-1500 is designed to play back DV (25 Mb/s) family format recorded tapes without a mechanical adaptor and without having to switch playback modes on the menu. DVCPRO 25 recorded tapes (M-size cassettes) can also be played back.

Long Recording Time

The HDV format adopts the same track pitch and tape speed as the DV format, thus offering the same recording time - a maximum of 276 minutes when recording on a PHDV-276DM Digital Master standard cassette tape and 63 minutes when recording on a PHDVM-63DM Digital Master mini cassette tape.

The DVCAM format adopts a wider track pitch than the HDV/DV format (15 micrometers compared to 10 micrometers) and offers a maximum recording time of 184 minutes on a PDV-184N standard cassette tape and 40 minutes on a PDVM- 40N mini cassette tape.

Down-conversion Capability

The HVR-1500 has a built-in downconversion capability that allows 1080i recordings to be output as 480i and 576i signals from the i.LINK and SD-SDI interfaces.

These signals can also be output from the analogue component, composite, or S-Video

connectors. This allows 1080i recordings to be edited using non-linear editing systems running DV editing software or to be viewed on an SD monitor.

When down-converting the 1080i recording, the aspect ratio displayed can be converted from 16:9 to 4:3. Display modes can be selected from Squeeze or Edge crop.

HD-SDI Interface

The HVR-1500 provides an HD-SDI output*, capability, through which 1080/60i or 1080/50i HDV recordings can be output in normal playback and search modes. Time code and audio signals are embedded in this HD-SDI output. This interface allows operators to integrate HDV footage and assets easily into existing HD-SDI-based editing systems such as the HDCAM and XDCAM HD systems.

* HDV signals fed to the HVR-1500's i.LINK interface cannot be converted and output from the HD-SDI interface. The i.LINK input signal must be recorded to the HDV tape first. DVCAM/DV playback signals cannot be up-converted for HD-SDI output.

SD-SDI Interface

The HVR-1500 also provides SD-SDI input*/output capability. Time code and audio signals are embedded in the SDI signal. This allows the HVR-1500 to connect with a wide variety of digital equipment including SDI-based editing systems.

* SD-SDI signals fed to the HVR-1500's SD-SDI interface cannot be up-convereted to HDV signals for recording to tape or to HD-SDI signals for output from the HD-SDI interface.

AES/EBU Interface

For professional digital audio needs, the HVR-1500 offers AES/EBU digital audio inputs/outputs.

i.LINK Interface

The HVR-1500 is equipped with a 6-pin i.LINK* interface. This allows it to transfer digital video, audio and command signals (in HDV, DVCAM and DV format) to a compatible VTR or non-linear editing system via just a single cable.

* i.LINK is a trademark of Sony used only to designate that a product contains an IEEE 1394 connector. Not all products with an i.LINK connector will necessarily communicate with each other. For information on compatibility, operating conditions and proper connection, please refer to the documentation supplied with any device with an i.LINK connector. For information on devices that include an i.LINK connection, please contact your nearest Sony office. DVCAM/DV signals fed to the HVR-1500's i.LINK interface cannot be up-converted to HDV signals for recording to tape or to HD-SDI signals for output from the HD-SDI interface.

Analogue Interfaces

As standard, the HVR-1500 provides analogue output interfaces for video and audio. These include composite, component and S-Video (Y/C) outputs and two channels of audio output (via XLR connectors). Using these interfaces, the HVR-1500 can act as a source feeder for an analogue editing system and as a simple playback viewer in various applications such as broadcast station studios, OB vehicles and production offices. By installing the optional HVBK-1505 Analogue Input Board, a full range of analogue video and audio inputs also become available, allowing a smooth transition to digital systems.

RS-422A Control

The HVR-1500 is equipped with an RS-422A interface, which is the industry standard for professional editing. This allows the VTR to interface with other Sony VTRs, editing controllers such as the Sony RM-280 Editing Controller and non-linear editing systems.

The RS-422A offers frame-accurate insert and assemble editing in DVCAM mode. It can also be used for source feeding* in HDV mode.

* The availability of frame-accurate control is dependent on the connected editing controller. For information on compatible editing controllers, please contact your nearest Sony office.

HD and SD Reference Inputs

The HVR-1500 accepts both HD and SD reference signals.

Time Code Input/Output

The HVR-1500 has a time code input/output capability to synchronise time code when making tape copies.

Built-in Signal Generator

Equipped with a built-in signal generator, the HVR-1500 can generate colour bars or black burst for video and a 1-kHz tone or silent signal for audio. These signals can be recorded to tape when the HVR-1500 is operating in DVCAM or DV mode* to create a pre-striped tape prior to editing. They can also be output from the analogue and digital interfaces to adjust other equipment in the

system.

* Recording these signals to tapes in the HDV format is not available.

Quick Response Mechanism

Quick mechanical response is an essential requirement for professional video production. The HVR-1500 provides this feature by using a reliable direct reel and drum motor mechanism. Fast forward and rewind speeds are an impressive 85 times normal play speed. In HDV mode, the colour picture search* speeds are ±8 and ±24 times normal play speed and in DVCAM mode they are between -60 and +60 times normal play speed. In editing environments, where speed and time are critical, this mechanism reduces the frustration editors often feel when they are searching for specific scenes.

*The colour picture search function can be controlled through the RS-422A interface.

Tape and Head Cleaner for Reliable Operation

The HVR-1500 incorporates a tape cleaner that adopts a high-grade sapphire blade. This tape cleaner helps prevent signal dropouts by cleaning away particles that accumulate while the tape is running. The recorder also incorporates a head cleaner to maintain the performance of the drum heads. These cleaners improve the reliability of recording and playback.

Built-in 2.7-inch LCD Monitor

The HVR-1500 is equipped with a 2.7-inch* colour LCD monitor with a high resolution of 211 K dots. This allows operators to view the input source during recording and check the playback picture in a 16:9 widescreen aspect ratio. It can also display the 4-channel audio level meters and time code, as well as setup menus for video, audio and VTR settings. Three different display modes can be selected.

* Viewable area, measured diagonally.

Auto Repeat

The HVR-1500 has a convenient auto repeat function. This enables the VTR to automatically rewind the tape to either the beginning of the tape or to a user-defined index point and to start playback again from there. Repeat start and stop index points can also be defined by setting time code values.

Picture Search (in HDV Mode)

With an editing controller, such as the Sony RM-280 Editing Controller, the HVR-1500 provides a convenient colour picture search function for HDV recordings*.

* In HDV mode, audio jog search is not supported and video jog search is supported in forward mode only.

Picture Search Using Menu Keys

The HVR-1500 provides a picture search function via the menu keys on its front panel. By pressing the relevant keys, forward and reverse search of 8 and 10 times normal play speed is available in HDV and DVCAM/DV modes, respectively. The menu keys also allow frame-by-frame picture search, as well as slow-motion playback.

Assign Button

Functions frequently used for VTR operations can be assigned to an ASSIGN button located on the front panel of the HVR-1500.

Digital Slow Motion and Jog Sound (in DVCAM mode)

When used with an editing controller, such as the Sony RM-280 Editing Controller, the HVR-1500 can provide excellent digital slow motion and jog sound for DVCAM recordings. It offers variable speed playback within the range of -0.5 to +0.5 times normal play speed. This allows operators to locate editing points quickly and accurately using noiseless slowmotion playback pictures.

Audio Level Control

Audio levels can be adjusted via the control knobs on the front panel. In recording mode, the input audio level of the analogue XLR, SD-SDI, AES/EBU and i.LINK* interfaces can be adjusted. In playback mode, the analogue XLR, SD-SDI, HD-SDI, AES/EBU and i.LINK output audio levels can be controlled.

* In HDV mode, the input/output audio levels cannot be adjusted.

SONY

Technical Specifications

--Recording/playback performance--

Recording format	60i system 1080/60i*, 480/60i* (NTSC) 50i system 1080/50i, 576/50i (PAL) * 60i indicates a field rate of 59.94Hz
Playback & down conversion format	60i system 1080/60i*, 480/60i* (NTSC) 50i system 1080/50i, 576/50i (PAL) * 60i indicates a field rate of 59.94Hz
Tape speed	HDV/DV SP 60i system: 18.812 mm/s 50i system: 18.831mm/s DVCAM 60i system: 28.193 mm/s 50i system: 28.221 mm/s
Playback/recording time	HDV/DV SP Max. 276 min with PHDV-276DM cassette Max. 63 min with PHDVM-63DM cassette DVCAM Max. 184 min with PDV-184N cassette Max. 40 min with PDVM-40N cassette
Fast forward/rewind time	Approx. 3 min with PHDV-276DM and PDV-184N cassette

--Video Input--

Digital video	SD-SDI (BNC x1) 60i system: Conforms to Serial Digital Interface (270Mb/s), SMPTE 259M 50i system: Conforms to Serial Digital Interface (270Mb/s), ITU-R BT. 656
Analog video	Ref. video (HD/SD) 60i system BNC x2, loop-through connection* HD: bipolar tri-level sync, 0.3 Vp-p, 75ohms, sync negative SD: black burst or composite sync, 0.286 Vp-p, 75ohms 50i system BNC x2, loop-through connection* HD: bipolar tri-level sync, 0.3 Vp-p, 75ohms , sync negative SD: black burst or composite sync, 0.3 Vp-p, 75ohms, sync negative sync negative Component** 60i system BNC x3* Y: 1.0 Vp-p, 75ohms, sync negative R-Y: 0.7 Vp-p, 75ohms, (75% colour bars) B-Y: 0.7 Vp-p, 75ohms, (75% colour bars) 50i system BNC x3* Y: 1.0 Vp-p, 75ohms, sync negative R-Y: 0.7 Vp-p, 75ohms, (100% colour bars) B-Y: 0.7 Vp-p, 75ohms, (100% colour bars) Composite** (BNC x2, loop-through connection)* 1.0 Vp-p, 75ohms, sync negative *Component, composite, and S-Video inputs share the same BNC connectors.

	**The HVBK-1505 Analogue Input Board is required.

--Audio Input--

Digital audio	AES/EBU (BNC x2): Conforms to AES-3id-1995
Analog audio*2	60i system: Audio (XLR 3-pin female x2) 50i system: +4/0/-6 dBu high impedance, balanced

--Video Output--

Digital video	HD-SDI (BNC x2) Conforms to Serial Digital Interface (1.485, 1.485/1.001 Gb/s), SMPTE 292M SD-SDI (BNC x2) 60i system: Conforms to Serial Digital Interface (270 Mb/s), SMPTE 259M 50i system: Conforms to Serial Digital Interface (270 Mb/s), ITU-R BT.656
Analog video	Component (HD) (BNC x3) Y: 1.0 Vp-p, 75ohms, sync negative R-Y: 0.7 Vp-p, 75ohms B-Y: 0.7 Vp-p, 75ohms Component (SD) (BNC x3) 60i system Y: 1.0 Vp-p, 75ohms, sync negative R-Y: 0.7 Vp-p, 75ohms, (75% colour bars) B-Y: 0.7 Vp-p, 75ohms, (75% colour bars) 50i system Y: 1.0 Vp-p, 75ohms, sync negative R-Y: 0.7 Vp-p, 75ohms, (100% colour bars) B-Y: 0.7 Vp-p, 75ohms, (100% colour bars) Composite (BNC x1) 1.0 Vp-p, 75ohms, sync negative S-Video (BNC x2) 60i system Y: 1.0 Vp-p, 75ohms, sync negative C: 0.286 Vp-p, 75ohms (at burst level) 50i system Y: 1.0 Vp-p, ohms, sync negative C: 0.3 Vp-p, 75ohms (at burst level) Monitor video (BNC x1) Composite, 1.0 Vp-p, 75ohms , sync negative, with superimposed text information

--Audio Output--

Digital audio	AES/EBU (BNC x2) Conforms to AEC-3id-1995
Analog audio	Audio (XLR 3-pin male x2) 60i system: +4/0/-6 dBu, 600 k ohms loading, low impedance balanced 50i system: +4/0/-3/-6 dBu, 600 k ohms loading, low impedance Monitor (RCA pin x1) 60i system: -infinity to -11 dBu Â±1 dB (-20 dBFS), 47 k ohms , unbalanced 50i system: -infinity to -9 dBu ±1 dB (-18 dBFS), 47 k ohms , unbalanced Headphones (JM-60 jack x1) 60i system: -infinity to -13 dBu (-20 dBFS), 8 ohms , unbalanced 50i system: -infinity to -11 dBu (-18 dBFS), 8 ohms, unbalanced

--i.LINK Interface--	i.LINK 6-pin x1*5Â IEEE 1394-basedÂ

--Time Code Input/Output--

TC In	BNC x1 0.5 Vp-p to 18 Vp-p, 3.3 k ohms, unbalanced
TC Out	BNC x1 2.2 Vp-p ±3 dB (when 600 ohms terminated), unbalanced

--Remote--

RS-422A	D-sub 9-pin (female) x1
Control-S (SIRCS)	Stereo mini jack x1

--General--

Mass	Approx. 6.9 kg (15 lb 3 oz)
Dimensions	211(W) x 130 (H) x 420 (D) mm (8 3/8 x 5 1/8 x16 5/8 inches)
Power requirement	AC 100 V to 240 V, 50/60 Hz
Power consumption	Approx. 60 W
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	-20°C to +60°C (-4°F to +140°F)
Operating relative humidity	Less than 80%
Storage relative humidity	Less than 90%

Supplied Accessories

	Operational Instructions
	AC Power Cord

Accessories

Accessories

HVBK-1505

Analogue Input Board

RM-280

Editing Controller

DSRM-10

Remote control unit